Amendments to the Claims

Amend the Claims as follows:

1. (amended) A motor driver circuit comprising:

An H-switch circuit arranged for connection with [one] each phase of a multi-phase step motor;

a switch driver interconnected with said H-switch and a bridge control circuit; [and]

a set point generator connecting with said bridge control circuit and said H-switch circuit for removal of excess phase current from said multi-phase step motor;

a step input to said set point generator for providing a set point current value to said set point generator;

a pair of operational amplifiers and a pair of comparators interconnected together and with said bridge control circuit, said operational amplifiers being connected with said H-switch in feed back circuit arrangement;

a phase current sensing resistor connecting with inputs to said operational amplifiers for providing a sensing current value to said operational amplifiers;

an output of one of said comparators connects with said bridge control circuit to provide a forward current to said bridge control circuit and;

an output of another of said comparators connects with said bridge control circuit to provide a reverse current to said bridge control circuit;

whereby current in each phase of said multi-phase step motor is monitored and excess current above said set point current value is reduced thereby bringing current in said each phase down to said set point current value.

Cancel Claim 2.

Cancel Claim 3

Cancel Claim 4

Cancel Claim 5

6. (amended) The [bridge control] motor driver circuit of Claim 1 including means connecting between said point generator and said bridge control circuit for providing a sign current value to said bridge circuit.

7. (amended) The [bridge control] motor driver circuit of Claim 1 wherein said H-switch circuit includes a pair of upper switches and a pair of lower switches, wherein said one phase of said multi-phased stepper motor is connected in parallel with upper and lower switches.

8. (amended) The [bridge control] motor driver circuit of Claim 1 including a PWM oscillator connecting with said set point generator and said bridge control circuit for providing a test current value to said bridge control circuit.

9, (amended) The [bridge control] motor driver circuit of Claim 8 wherein said PWM oscillator further provides PWM oscillator timing value to said bridge control circuit.

10. (amended) The [bridge control] motor driver circuit of Claim 1 further including a step input to said set point generator for providing a set point current value to said bridge control circuit.

11. (amended) The [bridge control] motor driver circuit of Claim 8 further including a max time circuit connecting with said PWM oscillator and said bridge control circuit for providing a maximum on time value to said PWM bridge control circuit.

12. (amended) The [bridge control] motor driver circuit of Claim 10 wherein said set point generator provides a wave front slope value to said PWM oscillator.

13. (amended) A method for removing excess phase current from a stepper motor comprising the steps of: determining an amount of current in [one] each phase of a multiphase stepper motor;
comparing [the one phase] motor current in said each phase to a predetermined test current value; and
reversing direction of [the one phase] motor current in said each phase to reduce [the one] said each phase motor current to the test current value, whereby current in said each phase of multi-phase step motor is monitored and excess current above said test current value is reduced thereby bringing current in said each phase down to said test current value.

Cancel Claim 14.

15. (amended) A method for controlling phase current in a stepper motor comprising the steps of: determining [the] pulse width modulation frequency [to control] associated with current in [one] each phase of a multi-phase stepper motor;
determining [an appropriate] a maximum pulse width modulation frequency; and
adjusting [a] said pulse width modulation frequency for [the one] said each phase current to a value less than said maximum pulse width modulation frequency.

Cancel Claim 16.
Cancel Claim 17.
Cancel Claim 18.